



Publication office at Bartow, Florida. Entered as second class matter February 16th, 1920, at the post office at Tampa, Florida, under the act of March 3, 1879. Entered as second class matter June 19, 1933, at the post office at Bartow Florida, under act of March 3, 1879.

## Highlights Of A Traveling Conference

BY V. V. BOWMAN  
ASSISTANT TO THE DIRECTOR  
STATE EXPERIMENT STATION

All who tour are not tourists — nor are all tours, traveling conferences.

I have been asked to tell briefly of a tour, or traveling conference, unusual in both purpose and personnel.

H. L. Wilson, under-secretary of Agriculture of the United States, decided about a year ago that instead of an annual conference in Washington, a series of traveling Land Use Planning conferences of Federal, Regional and State officials of the various agricultural agencies, would better acquaint the Washington group with the nation's agricultural problems, and would contribute materially to plans for the solution of these problems.

During 1939 six of these tours were made covering different regions of the United States. The concluding tour covering eight Southern states was completed January 20 in South Carolina.

Florida was host to this group on Tuesday and Wednesday, January 16 and 17. H. R. Tolley, chief of the Bureau of Agricultural Economics, heading a delegation of twenty-two Washington officials and fifteen additional regional and Southern states representatives, detained early Tuesday morning in Tampa and found awaiting them eighteen eager marked cars, each with its complimentary bag of assorted citrus fruits from the Florida Citrus Exchange and each with its complement of Flor-

ida agricultural workers ready to talk turkey, truck, trees and travel. The traveling conference had begun. No aimlessly meandering motorcade was this. Down in black and white between the canary covers of the log-book, were miles and minutes, matching numbered placards planted at points of interest along this four hundred mile line of march.

Dr. Wilmon Newell, Provost for Agriculture at the University of Florida, had hardly begun to supplement the log-book's strawberry data to his strawberry passengers, before they found themselves munching strawberries and listening to County Agent Alec White orate over the National Forest Service sound truck, as before them stretched the great sheds of the Plant City State Farmers Market. From Coronet to Imperial Polk the visitors viewed the phosphate industry and were startled to learn that Florida furnishes a quarter of the world's phosphate tonnage. From the fairyland of Mountain Lake these wide-eyed conferees were piloted through the Waverly Citrus Growers offices and packing house by Paul Hayman, Polk County Agent, where the ear, eye and inner man were so excellently treated that the schedule was forgotten.

Let me add right here that throughout the tour, home demonstration agents and Farm Security home supervisors were on the spot at every stop with material evidence of the culinary art and the takers were not

wanting.

At Kissimmee, County Agent June Gunn displayed prize Brahma cattle and told of the building of this Osceola County cattle kingdom.

As Seminole County celery was crunched at noon in an Orlando restaurant, County Agent K. C. Moore gave a word picture of the Orange County agriculture and its marketing problems. Sanford's broad green celery fields were impressive and the beginning of diversification efforts of some growers were noted. Between the two Saint John's river crossings, Volusia County's citrus, pasture improvement, ferneries and bulb culture were pointed out. The native beauty of Juniper Springs proved highly competitive to the Forestry and Game Refuge talks given there.

At the next stop in north Marion County, the home and farm of a Farm Security Administration Tenant-Purchase client were inspected by the group in general and by Regional Director E. S. Morgan in particular.

At the dinner-conference in Gainesville Tuesday night were eighty people, Federal, Regional and State representatives from the following agencies: Agricultural Adjustment Administration, Bureau of Agricultural Economics, Bureau of Plant Industry, Biological Survey, Experiment Station, Extension Service, Farm Credit Administration, Farm Security Administration, Florida For-

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# Talking It Over . . .

BY A. P. SPENCER  
VICE-DIRECTOR OF EXTENSION

I am glad to have this opportunity to talk for a little while about a matter that is of first rank importance to us all. It is the matter of conservation of our land and other resources.

Before we go into that subject, however, I want to say just a few words about the Agricultural Extension Service. For 25 years we have been working to improve Florida agriculture and Florida rural life and the progress that has been made assures us that our efforts have not been in vain. Were it not for the willing and conscientious efforts of all Extension workers and the whole-hearted cooperation of the farm people among whom we have worked, this progress would not have been possible.

We're now starting out on a New Year — our 26th since the Service was founded. And we want to assure you that we will do out utmost to serve you and to improve rural Florida during the coming 12 months. A great deal of progress has been made, but there is so much to do . . . And we intend to do all we can toward improvement and development of Florida agriculture during the year 1940 and the years to come.

And now, back to the subject of conservation . . .

Of late, it has been the theme of much discussion — conservation of our natural resources, those resources that may never return when once completely destroyed unless definite leadership paves the way and those most affected realize their responsibilities and undertake them in a constructive way.

Florida, once a state of enormous lumber supplies, has been cut over and in many places exploited without due consideration for the future. Most of this has been done in the past 40 years and has contributed to the welfare and support of thousands of people, but with little thought of reforestation while this lumbering program was going on. Fires that sweep over the areas of lands once covered with timber destroy each year thousands of seedling trees that have grown from seed scattered by the winds and have made large areas barren of trees and almost useless for agriculture. Now we proceed with a program of conservation to prevent such destruction.

Our cropping systems, developed largely because of necessity for revenue to the farmers, have depleted

soil fertility and on sloping lands are largely responsible for erosion of top soils. We now have a program of conservation intended to prevent this waste.

Our wild life, left unprotected through generations, has been almost driven out or destroyed in many areas. We now have plans to conserve wild life and to set apart areas for that particular purpose and thus protect that resource to serve the present and future generations.

We have large areas, particularly in the Western part of Florida, that show unmistakable effects of erosion. Large areas of top soil have been carried into the rivers and lost to the farmers. Production on such farms has gradually decreased because this top soil, containing a humus and plant food necessary for the production of crops grown on such land, has been destroyed. Farms that once supported families and were productive and were considered an important asset to the owner and the community have been depleted of fertility to such an extent that the owners and

tenants have abandoned them. To correct this condition, the legislature of Florida passed an act to enable the farmers in such an area to cooperate in a program to prevent this erosion by cooperating with the Soil Conservation Service of the U. S. Department of Agriculture, the Agricultural Extension Service of Florida, the State and Federal Forest Departments, and other departments of the State and Federal government serving such areas. The territory lying west of the Apalachicola River to the Alabama line, with the exception of limited areas immediately bordering the coast, has taken advantage of the law set up and the interested parties have petitioned for a soil conservation district. They will soon be able to help themselves with assistance now available to them.

Our native Florida cattle, once tick ridden and weakened by parasites, are now being recognized as a substantial source of revenue and to that end a constructive program, the purpose of which is to supply pas-

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# Some Symptoms Of Citrus Malnutrition In Florida

-- By --  
A. F. CAMP AND  
B. R. FUDGE

(Concluded from last issue)

## Nitrogen Deficiency

Identification of nitrogen deficiency symptoms is somewhat involved because of a peculiar type of leaf pattern, in which the tissue along the midrib and the larger veins is distinctly lighter in color than the remainder of the leaf, has been classified by Haas as a symptom of nitrogen deficiency and by Bahrt and Hughes as a symptom of magnesium deficiency, although it is not entirely clear as to whether they were describing identical conditions, or those described here. Their descriptions, however, would fit fairly well the pattern here referred to, although it is associated primarily with girdling of the twig, limb or tree in such way as to destroy the food-conducting tissues without destroying the water-conducting tissues. When such girdling occurs the leaves become yellow along the midrib and larger veins while the remainder of the leaves usually remain a dark dull green color for a time and then fade slowly to yellow. Tissue along the midrib and veins may become extremely light in color, giving rise to the terms "inverted frenching" and "vein chlorosis." The bleaching is probably caused by the cutting off of normal channels of food supply without at the time time cutting off entirely the supply of water. It can hardly be considered a deficiency of any particular element, particularly since the affected portion of the tree can be healed only by supplying the missing conducting tissue, as by inarching. This pattern can be produced artificially by girdling a twig or branch but is associated in the field with footrot and gum diseases due to *Diplodia* and *Phomopsis*, which destroy the bark or roots, and lightning injury which has girdled the tree.

While the leaves affected as above described are likely to have an abnormal chemical composition and to show deficiencies of a number of elements, this pattern can hardly be considered a deficiency in the sense in which this term is used in this bulletin. Applications of specific elements are not indicated for the correction of this pattern but rather the supplying of a new conducting tissue where this is easily possible.

A very similar pattern to the foregoing appears on older leaves in some groves following a heavy flush of new growth. The leaves become more deeply colored, however, and then shed. This is quite probably the leaf symptom described by Bahrt and Hughes as a form of bronzing.

Deficiency symptoms which respond to applications of nitrogen are almost too well known in Florida to merit description but since they may be confused in some instances, attention is being called to some of the outstanding characteristics involved. Nitrogen deficiency symptoms fall into two categories, i. e., symptoms of trees that are continuously starved for nitrogen and symptoms brought on by a sharp decline in nitrogen supply. The second type of nitrogen deficiency is not extremely common in Florida but does occur occasionally in an acute form when the nitrogen supply falls during the period of maximum fruit development. The following descriptions apply strictly to what may be accurately termed nitrogen deficiency symptoms.

## Foliage Symptoms

Where nitrogen is deficient when growth appears the young leaves are light yellowish green in color; the veins frequently are very slightly, but not markedly, lighter in color than the tissues between. The young leaves are undersized, thin, and fragile and develop into very light green leaves which may ultimately become yellow if any fruit is produced. Shedding of leaves is heavy on such trees and consequently the foliage is sparse. This type of pattern is common in unfertilized trees. The second type of pattern may develop when the trees have sufficient nitrogen during the spring and put on a heavy normal growth and then become acutely deficient in nitrogen during the summer and fall when the fruit is maturing and there is a heavy drain on the tree. Under such conditions the green leaves slowly bleach to a mottled irregular green and yellow pattern and ultimately become entirely yellow and shed. In its final stages this pattern slightly resembles the symptoms of magnesium deficiency because both are associated with fruit production. This condition has been observed fre-

quently in ridged groves that are not sufficiently fertilized in summer to take care of the crop of fruit. Trees growing on ridged soils are limited in root space and this is further accentuated by the waterlogging of part of the ridge during the rainy season.

## Twig Symptoms

While no specific twig or growth symptoms have been identified, trees that are constantly short of nitrogen are stunted and irregular in shape and the growth is very short and irregular on the tree. Such trees seldom die but remain in a permanently stunted condition until nitrogen is supplied in adequate amounts.

## Fruit Symptoms

Trees deficient in nitrogen frequently produce a good quality of fruit as far as texture and flavor are concerned but the crop is very small.

## Modifications of Symptoms

While modifications of nitrogen deficiency are not particularly important, the ability to distinguish between true nitrogen deficiency and the deficiency of other elements is important. As mentioned under magnesium, the symptoms of the latter deficiency were commonly ascribed to nitrogen deficiency until the importance of magnesium was established. It must always be remembered that yellow leaves are not necessarily, or in fact commonly in Florida, an indication of nitrogen deficiency.

## Causation

While the causal factor of the first type of nitrogen deficiency is simply a lack of application, there is some evidence that the second may be produced either by a failure to time properly the summer application or to judge accurately the amount of nitrogen necessary to mature the crop. There is some indication that improper nitrification due to waterlogging of the soil during the summer rainy season may result in a temporary deficiency of nitrogen which is relieved by dry weather.

## Treatment

In ordinary cases of nitrogen deficiency the obvious treatment is to supply nitrogen in the required amounts. In the case of acute nitrogen deficiency due to fruit production some consideration should be given to the form of nitrogen. The use of nitrates usually would be in-



licated, due to their immediate availability. The subject of nitrogen fertilization is too complex, however, for discussion in the scope of this bulletin.

#### Iron Deficiency

The symptoms of iron deficiency have been known generally as iron chlorosis and the acute stage has been referred to as decline in some areas. While it has been of very minor importance in Florida, it has been a considerable problem in both Arizona and California. Due to the fact that iron deficiency has been rapidly developed in water cultures, the symptoms of the deficiency in the field were early recognized. In California, Lipman and Gordan, and Thomas and Haas studied the problem of correcting the deficiency; and recently Moore has reported on new experiments for its control. Finch, Albert and Kinnison reported experimental treatments of iron deficiency in Arizona on both citrus and Eucalyptus. There have been no published reports on control in Florida, but Bahrt has recently reported improvements following soil application of ferrous sulfate. No general recommendations have been made as yet for correction under Florida conditions. This deficiency is relatively common wherever calcareous soils are used for citrus, and so far it has been less effectively controlled than most other deficiencies.

#### Foliage Symptoms

The young leaves are very light in color and sometimes almost white, but with the veins greener than the remainder of the leaf. Even the small veins are green so that a fine network of green veins is present on a very light green background. In acute cases the leaves are tinged with a yellowish to bronze color which is quite characteristic in oranges. The leaves are very thin and fragile and shed early. In acute cases grapefruit leaves may be reduced in size with a pronounced yellow tinge when young and dark brown markings when older.

#### Twig Symptoms

The trees die back severely on the periphery and especially in the top, so that some trees may have a dead top with the lower limbs carrying almost normal foliage. Eventually the trees may be greatly reduced in size and pass out of production. No particular or peculiar symptoms on the twigs that would be distinctive have been reported.

#### Fruit Symptoms

No definite fruit symptoms have been associated with iron deficiency beyond the fact that the tree will cease to mature fruit in acute cases.

#### Varietal Susceptibility

All common varieties of citrus are affected but thin leaves with very fine dark green venation are more typical of oranges than grapefruit. In grapefruit there is a tendency to produce small slightly narrowed leaves that are very light green with the characteristic venation when the leaves are immature. As the leaves mature the pattern fades and dark brown markings appear as raised areas on their surfaces.

#### Causation

Iron deficiency is attributed mainly to alkalinity of the soil due to excess carbonates. In Florida it occurs commonly on alkaline coastal soils that are closely underlaid by lime rock. In many groves observed there is very little soil above the rock and the soil consequently dries out excessively during dry weather. This is probably a contributing factor, since citrus is grown without observed iron deficiency on marl soils as high in pH as those in which iron deficiency occurs. The marl soils are much deeper and have a much better regulated moisture supply. On acid sands similar but less pronounced symptoms have been noted. Occasional response to iron applications to the soil in affected groves has been reported and it is probable that an iron deficiency exists on some such soils, although it has not been thoroughly worked out as yet.

#### Treatment

Iron sprays and soil applications so far have not offered practical control of iron deficiency of citrus on alkaline soils. Injections of iron salts into the trunks of trees have been used to some extent in both Arizona and California. In making such applications holes are bored into the trunk or limbs of the tree, filled with a soluble iron salt such as iron citrate or iron tartrate, and then plugged and sealed. Reports on the results from such treatments have been somewhat conflicting and the method has not been widely used.

In Florida sprays made up with ferrous sulfate and lime resulted in the development of small green spots on the leaves similar to those reported by Haas. Successive sprayings did not materially improve the condition of the foliage. Soil applications of ferrous sulfate failed to give correction in a reasonable time, even at high rates of application, probably due to fixation of the iron. Injections of iron salts into the trees gave only indifferent results and are not recommended, on account of both cost and damage to the wood of the trees. Partial recovery has been noted when sawdust or other organic

material was used to form an acid layer of decaying material on top of the original soil but this treatment is too expensive to use except in the case of a small area which might otherwise disfigure a grove. Areas in which iron deficiency is acute are small and except in unusual cases expensive treatments would not be justified even if success were assured. As mentioned previously there are some indications that iron applications may prove useful on acid soils, probably due to the lower fixing capacity of such soils as compared with alkaline ones.

#### Boron Deficiency

Boron deficiency is known as "hard fruit" in Rhodesia, this being the only area in which it has been definitely identified in the field. Field symptoms in Rhodesia were described by Morris, and compare so closely with the symptoms found in a few groves in Florida that this section has been included even though response to boron treatment has not yet been obtained in the Florida conditions. Haas, and Haas and Klotz described certain leaf symptoms associated with boron deficiency in water culture and recently Haas (in press) has reported the production in water cultures of the symptoms described by Morris as characteristic of the deficiency in the field. Camp reported on the occasional occurrence of symptoms in Florida that paralleled those described by Morris as mentioned above. The present status of the problem in Florida is as yet unsolved and the descriptions given will be based on Morris' reports, together with comments on Florida material that parallels closely the symptoms he described. The final decision as to whether the Florida symptoms are really those of boron deficiency will have to be the subject of a later report.

#### Foliage Symptoms

Haas and Klotz reported that enlargement, corking and splitting of the upper surface of the veins in the leaves was characteristic of boron deficiency in water culture. The leaves were recurved and became brownish-yellow in color. This work was duplicated in Florida by Camp and Blackmon and followed up with field experiments with boron compounds in groves showing this symptom but without results. Morris reported that the corky veins were not specifically characteristic of the deficiency symptoms in Rhodesia, but that the young leaves showed small water-soaked spots or flecks that became tiny translucent spots in older leaves. A spotting or flecking that resembled his description was found by the writers in groves in Florida



producing the characteristic fruit symptoms. Associated with this also was a premature shedding of leaves starting in the tops of the trees and soon leaving the tops almost completely defoliated. This defoliation is apparently typical of the symptoms found by Morris.

#### Twig Symptoms

Morris described a dying back of the trees and a tendency to bushy up-right growth, apparently somewhat similar to the growth condition in acute zinc deficiency. The trees under observation in Florida had apparently been too lately affected to show exactly the same condition, although they are dying back in the tops to some extent. The dying has not been severe so far and the extreme condition reported by Morris may not have been reached.

#### Fruit Symptoms

Fruit symptoms appear to be the most constant and reliable for diagnostic purposes. Morris, working with Valencias, reported an unusually heavy shedding of young fruit, with affected fruits showing a brownish discoloration in the white portion of the rind (albedo), gum formation and an unusually thick albedo. Such fruits cut as though they were of a cheesy consistency rather than crisp as is the case with normal fruits. The peculiar "feel" when cutting was used as a diagnostic symptom in the field. Older fruits were misshapen and had an unusually thick albedo which frequently contained gum deposits; the seed failed to develop and gum deposits were common around the axis of the fruit. The pulp and peel were unusually hard and dry and very little if any juice could be extracted from acutely affected fruits by hand squeezing.

The symptoms fit quite closely the material found in Florida though they were found most commonly in grapefruit rather than oranges. The fruits are usually irregular in shape and frequently lopsided. The irregularity is brought on by the failure of certain portions of the rind to develop properly and these areas are hard to the touch and frequently darker yellow than is ordinarily characteristic of grapefruit peel. These hard spots contain brown gummy concretions which are apparent as hard lumps after the fruit has been allowed to shrivel slightly. Affected fruits may be small, not over three inches in diameter. The pulp is hard and frequently quite dry and the seeds are not developed properly; when the fruit is cut only dark seed coats are found where the seeds should be. In milder cases only a portion of the seeds may be undeveloped and the remainder may be of

normal size but may have seed coats which are unusually dark in color. Gum may be present around the undeveloped seed and in a few cases was present in large amounts. Fruit that is apparently normal is found on the same tree with affected fruit.

Morris reports a reduced sugar content in affected fruits and this is in agreement with the work of Haas who has reported improper translocation of sugars when boron deficiency was present.

#### Causation

Morris does not report on the probable reason for the occurrence of the deficiency in Rhodesia. In Florida the symptoms here described have been found associated with alkaline soils and drouth conditions. In a few severe cases alkaline irrigation water may have been a contributing factor. It seems quite probable that the combination of alkalinity and extreme drouth may result in the boron in the soil becoming unavailable to the plant and this explanation would account for its sporadic occurrence.

#### Treatment

Until further work is done no recommendation for treatment can be made in Florida. Morris reports the successful use of borax in amounts up to two pounds per tree on oranges without the occurrence of typical boron toxicity. Such treatments are usually toxic in Florida, particularly on grapefruit which is more susceptible to boron toxicity than oranges.

#### Boron Toxicity

Boron toxicity has been known to occur in the field in California for many years, chiefly due to the presence of boron in irrigation waters. While boron toxicity symptoms in Florida have been described only recently many growers and others reported similar symptoms associated with applications of muriate of potash during the World War. When the content of borax in this fertilizer material was reduced by better manufacturing processes the toxicity disappeared until recent years when it recurred, due entirely to other causes. At the present time boron toxicity in Florida is limited to small areas to which borax has been added inadvertently or experimentally.

#### Foliage Symptoms

Following application of materials containing boron to a tree, the first evidence is a pronounced yellowing of the tips of the leaves which increases in area on the individual leaf until half or more of the leaf surface is involved. The yellowing extends down along the edges of the leaf with the green color persisting along the base of the midrib in the form of

an inverted "V". The margin between the yellow and green areas is not sharp but fades from one condition to the other frequently with considerable mottling. Dead areas frequently develop along the edge of the leaf near the tip. The leaves shed rapidly at the petiole and if the toxicity is severe the tree may defoliate quickly and immediately come out with another flush of growth. In acute cases the new growth may be almost white with narrow green bands along the midrib and the main lateral veins with the white color rapidly fading to yellow. The leaves may shed at the petioles and another flush of growth may follow. When the leaves are young this pattern often resembles the symptoms of zinc deficiency except for the fact that the leaves are not narrowed and pointed and, if anything, tend to be rounder in outline than normal; nor are they brittle and hard but rather leathery and tough. Several flushes of growth may follow in succession if moisture conditions are favorable and the symptoms on succeeding flushes may become either less pronounced, indicating recovery, or more pronounced and accompanied by loss of wood. In the former case the succeeding flushes of growth are likely to be very vigorous with large leathery leaves and with less mottling apparent with each succeeding flush until only small whitish areas occur on the leaf. These are located between the veins and near the outer margins of the leaf. These light areas may be typical also of injury due to the very small amounts of borax or other boron salts. If the tree is too severely injured and particularly if boron remains in excess in the soil or additional amounts are applied to the soil the leaves become smaller with successive flushes. Such trees will carry only a small amount of foliage; individual leaves will be about one-third normal size, almost white in color and with dead areas along their edges near the tips.

In all of the above cases the coloration refers to the top surface of the leaves. The under surface of the chlorotic areas while yellow always shows a rough resinous excrescence which is quite typical and serves as a further means of identification. On newly affected leaves the excrescence is light yellow to light brown and appears to be a series of tiny pustules. When affected leaves persist on the tree the excrescences darken and become almost black.

#### Twig Symptoms

No particular twig symptoms have been identified as being peculiarly typical of boron toxicity but  
(Continued on page 20)

# The Citrus Industry

with which is merged The Citrus Leaf

Exclusive publication of the Citrus Growers and Shippers

Publication office 550 North Broadway, Bartow, Florida

Telephone 269

Published Monthly by  
ASSOCIATED PUBLICATIONS CORPORATION  
S. L. FRISBIE - President  
S. LLOYD FRISBIE - Secretary-Treasurer  
A. G. MANN - Production Manager

Subscription, \$1.00 per year in advance

## FLORIDA'S FROST DAMAGE

The extent of damage suffered by Florida citrus groves as a result of the sub-freezing temperatures on the mornings of January 28 and January 29, cannot at this time be estimated with any degree of accuracy. Even the oldest of old timers among citrus growers are loath to hazard an approximate estimate of the damage.

Certain it is that much of the fruit still left on the trees was badly frozen. This is particularly true of tangerines and mid-season oranges, on which the loss appears at this writing, January 30, to be almost total. A material percentage of the Valencias appears to have escaped serious damage, particularly in favored locations where firing was systematically carried on. Grapefruit, too, was less seriously injured, and it is believed that forty or fifty per cent of the grapefruit still left on the trees came through uninjured.

With temperatures ranging from 10 degrees in the extreme northern sections of the citrus belt, to 18 in the "Ridge" section and in the low twenties on the Lower East Coast, firing of groves was general throughout the state. Fuel oil heaters, wood fires and smudge pots were in general use. Unfortunately many growers exhausted their fuel supply on the nights preceding the extreme low temperatures of Sunday and Monday mornings when firing was most needed.

While damage to fruit spread throughout the belt, from the extreme northern sections to the Lower East Coast, it is believed that the trees suffered little damage except in the extreme north. Cold weather all during the present month preceding the freeze, had put the trees in as nearly a dormant condition as citrus trees ever become, and they were in the best possible condition to withstand the frigid temperatures to which they were subjected.

Roger Babson, who makes a speciality of surveys and whose reputation for accuracy is recognized, places the loss to the remaining grapefruit crop at 60 per cent; oranges 90 per cent, and tangerines 100 per cent. A personal, though cursory, inspection of several hundred groves by a member of the staff of this publication, leads to the belief that in this case Babson may have overestimated the damage — though not too much.

The grower who saved his crop, or any portion of it, should be in position to demand and receive attractive prices for his fruit if it is held until the trade is ready to receive it. This

should be especially true of grapefruit. Both Florida and Texas entered the present season with limited quantities of this fruit. Both states have suffered material damage from the cold. With the very limited supply now available and with a more than normal consumer demand as a result of greater purchasing power in the consuming centers, grapefruit should bring extremely satisfactory prices through the remainder of the season.

Unless later developments should show greater injury to trees than now anticipated, Florida citrus growers may consider themselves fortunate to have gone through the extreme cold spell without even greater loss. And, being optimists, Florida citrus growers have already set about the work of recouping their losses and repairing the damage done.

## SEEKING A REMEDY

Dissatisfied with prevailing marketing practices and disgruntled at prevailing low prices, many citrus growers have been giving serious thought to new methods, new systems and new practices in the marketing of their crops.

Suggestions along this line range all the way from the proposal of the Florida Citrus Growers Inc., that one gigantic central marketing agency should be established, the purpose of which would be to handle all of Florida's vast citrus production, to that of a group of growers who would abolish all control by the state and federal governments, abolish all laws for inspection, grade and pack and permit the grower to sell to whom he would at any time and regardless of the condition, size, quality or appearance of his fruit.

Midway between these two extremes is a third group who advocate the formation of an organization among growers to bring about the sale of all citrus fruit on an FOB basis. One of the most successful business men of the state, who owns and operates a considerable acreage of grove property as a side line, maintains that the salvation of the growers and the industry lies in the establishment of an FOB market. He points out that practically no foodstuffs other than citrus depend upon auction markets to establish the price of their products; that an FOB market would permit the grower to know what he was getting for his fruit, and if the price were not satisfactory, he could feed his fruit to his live stock or use it for fertilizer, and not run the chances of having his account charged up for a freight bill.

Certainly, Florida citrus growers are thinking, and thinking hard, about some better method of marketing their fruit.

Suit brought in the courts by a group of 236 citrus growers of Polk, Hardee and DeSoto counties to annul all citrus inspection laws and all provisions for the enforcement of grade and pack regulations is still awaiting court action. The plaintiffs aver that these laws and regulations are unconstitutional, confiscatory and that they interfere with the right of the individual to conduct his business as he sees fit. Further, that the enforcement of the laws in question would operate to put many growers out of business. Court decision is expected promptly.



# Entomological Conditions

## In 1939 . . .

BY J. R. WATSON  
ENTOMOLOGIST, FLORIDA  
EXPERIMENT STATION

At this time of the year it is a habit, and a good one, to take stock of the happenings of the past year and, as far as possible, to outline some plans for the coming one. As a usual thing this is difficult to do for insects as we cannot know what the weather will be and the weather has much to do with the abundance of any particular insect.

Taking up first the insect pests of citrus, dry weather in the fall of the year was very favorable to the development of rust mites as it hindered the development of the rust mite fungus which ordinarily controls rust mites during warm, humid weather. This, in connection with the widespread movement for better fruit led to more dusting and spraying for rust mites than during previous years.

The Florida red scale was perhaps more abundant than for several years. Since this scale lives entirely on the fruit and leaves, not attacking the twigs and branches of the trees, it is very susceptible to a freeze. This scale calls for a somewhat stronger concentration of oil than does the purple scale.

Aphids were very scarce in citrus groves in the spring of the year, so scarce that there was not sufficient food for our Chinese ladybeetles to increase to any extent, with the result that we have fewer Chinese ladybeetles than for several years. It will be very difficult in the spring to get enough of these beetles to send to other growers who want to introduce them into their groves, but we are confident there are still enough around to maintain the species in the regions in which it has been established.

A darkening and rusting of the skin of citrus fruit, particularly grapefruit, has been traced down to a species of thrips, not hitherto recognized as a pest of citrus, in fact not hitherto known to be in the state. This is a fairly close relative of the California citrus thrips which we do not have in Florida. It was found that it yields readily to lime-sulfur sprays, which at the same time helps to control rust mites and to a certain extent crawlers of scale insects.

Two pests of peppers and tomatoes have widened their range during the past year. The pepper weevil

which last year as far as we know was confined to one county was found in two additional counties. This is a weevil closely related to the boll weevil, which lays its eggs and raises its young in the pepper, causing much damage. This infestation is confined to three of the southwestern counties of the state. Another weevil has been found to be rather widespread in the southeastern part of the state. This is the pepper stem weevil. Unlike the pepper weevil it attacks tomatoes as well and does not ordinarily enter the fruit but mines the stems of both peppers and tomatoes, causing the plant to wilt and die. A thorough clean up of the fields after the picking season is the only feasible control we know of for either of these weevils. Unless our growers religiously tend to this, these two weevils are going to continue to spread through the state and cause heavy losses to growers of peppers and tomatoes.

The pinworm which was so destructive to tomatoes a couple of years ago was much less abundant last year, as we predicted it would be, demonstrating that it was unseasonably warm weather in January, 1937 which caused the unusually heavy infestation. This infestation will probably not be repeated unless January and February are again unseasonably warm.

Army worms were abundant and destructive to grasses and many other plants during the fall. Several species were involved, one of the most abundant being the semi-tropical army worm, although the fall army worm was also much in evidence.

A bait composed of 16 pounds of brown sugar and four pounds of tar emetic in 100 gallons of water again proved to be the most economical and practical control for the gladiolus thrips and gives promise of being helpful for the Florida flower thrips on such plants as roses and carnations.

During the past year an intensive study of the lubberly locust which was particularly destructive in the neighborhood of bulb farms, was carried on. It was found where they laid their eggs and what was the best method of controlling them. The best time to destroy them is

when they are first hatched, as they are bunched together in large colonies at that time, and are best dealt with by a pyrethrum or rotenone spray. A trench a foot deep with straight sides is a barrier which the locusts cannot cross.

For the first time the Mexican bean beetle did commercial damage in Florida. This is only in one section near the Georgia line, in the extreme northern part of Florida. Although this beetle has been found twice before in the state, there was no commercial damage but this year the damage was severe. This is the most important insect pest of beans in states immediately north of us. It is now apparent that at least the northern counties of Florida may expect trouble from this insect.

The area infested by the white fringed beetle spread a little in Florida during the past year, but no new centers of infestation were discovered in Florida although several were discovered in adjoining states. Energetic measures by the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, resulted in the diminishing of the members of the beetles and thereby somewhat decreasing the probabilities of its being carried to new regions.

In many sections of central Florida where Sea Island cotton was being raised the control of the boll weevil was much interfered with by heavy rains in July and August.

The Experiment Station sent several hundred pumpkin bugs parasitized by the feather-legged fly to the Fiji Islands in the hope that the parasite can be established there.

The entomologists at the Everglades Experiment Station gave special attention to the parasites of the can borer and a study of the wireworms in the soil, which are severe pests in certain sections of the Everglades. It would seem that the only feasible method of attacking this pest is by the proper rotation of crops.

A very effective bait for mole crickets was discovered. This consists of thoroughly mixing an ounce of paris green with a can of dog food or other chopped meat. This worked well on back yard gardens and other

(Continued on page 14)



## The Growers' Own Page

### GROWER WANTS NO HITLER

Crescent City, Florida,  
Jan. 13th, 1940.  
Editor The Citrus Industry,  
Bartow, Florida,  
Dear Editor:

I noticed in a recent issue of one of our daily papers two contrasting Associated Press accounts, one was from Detroit, Mich., the first paragraph of which reads: "A special grand jury today indicted the three largest corporations in the United States engaged in the distribution and sale of electrical supplies along with ten Detroit wholesale houses and 19 individuals on a charge of conspiracy to violate the anti-trust laws through price fixing"; the other is from Winter Haven, Florida, the first paragraph of which reads: "An industry-wide plan to bring all citrus selling into a centralized marketing agency is the aim of the Florida Citrus Growers, Inc."

Is the act of a few corporations and private individuals engaged in the selling and marketing of citrus fruits in organizing so as to control or fix the price of their product any more angelic or any less a violation of the anti-trust laws than that of a few corporations and individuals in organizing to control the price of electrical supplies? Is such an organization the wish of the growers? NO! It is the wish of only a relatively few of the individuals seeking to control the multitude of small growers who are depending upon the proceeds of their groves to clothe, feed and educate their families.

This can be nothing more than an attempt on the part of the few to line their nests with the feathers of the goose which used to lay the golden eggs but which for some reason or another has been indulging in rather a protracted molting season, whereas if they only would let her alone and quit changing her diet she very likely would soon resume the practice of laying the much coveted eggs — it is just an attempt on the part of the few to get the carcass while the masses sit back and wait for the opportunity to gnaw the bones after the meat has all been picked off.

Why make so much fuss about this matter when it is really such a simple one to solve? The answer is that

This department is devoted to the growers, for their use in giving expression to their views and a discussion of growers' problems. Any grower is welcome to make use of this department for the discussion of topics of interest. The only requirements are that the articles must be on some subject of general interest, must be reasonably short and must be free from personalities. The editor assumes no responsibility for views expressed, nor does publication imply endorsement of the conclusions presented.

they do not want it solved; they only want to control the industry for the benefit of the chosen few, but when those benefits show up in the red they straightway put up a squawk and say that the growers need to have their business controlled and set about to control it the way they (the few) want it. To accomplish this end they organize what is known as The Florida Citrus Growers, Inc.

But this organization is a growers' organization in name only. It is a misnomer assuming a bold attempt to win greater prestige from the departmental bureaucrats higher up. It is a most heinous situation proposed and controlled by exceptionally vile and insidious motives and cunning craftsmen in the art of deception.

Perhaps one may think that I am too bold in my assertions but I was present at the meeting in Crescent City when the Putnam County unit of the Florida Citrus Growers Inc., was organized, and there were two or three "big shots" present from farther south who were supervising the organizing of our county unit and they made the statement in no uncertain terms that no one who did not have time and money to attend

## Uncle Natchel says . . .

JES' BE SHO'  
IT'S NATCHEL . . .  
NATCHEL, YASSUH!



**W**HENEVER, wherever you use nitrate, be sure it is Natural Chilean Nitrate of Soda. It is the world's only natural nitrate. It is the "natchel" food for bigger, better crops.

Chilean Nitrate is guaranteed 16% nitrogen. It also contains, in natural blend, many other plant food elements — protective elements such as iron, manganese, magnesium, boron, iodine, calcium, potash, zinc, copper and many more. These protective elements act much like vitamins in their effect on your crops.

Use Natural Chilean Nitrate. It is well suited to your crops, your soil, your climate. No price increase this entire season, and there is plenty for everybody's needs.

## NATURAL CHILEAN NITRATE OF SODA

**ON YOUR RADIO** Enjoy the Uncle Natchel program every Saturday night on WSB, WRVA, and WSM, and every Sunday afternoon on WIS, WOLS, WPTF, WBT, KWKH, WJDX, WMC, WWL, WAGF, WDBO, WSFA, WJRD, WJBY.

the various citrus meetings throughout the state at his own expense should be appointed on the board of directors or any of its committees. This of course puts the "big interests" in control, and how well do you suppose they will "represent" the interests of the multitude of smaller growers who really constitute the majority of all the parties directly concerned?

When a five or ten acre grower goes to one of these so-called representatives with a complaint what kind of an answer does he get? Something like this: "It has come to the survival of the fittest," which being interpreted means, "Take your place at the foot of the class" or seek help from "the relief" or "the WPA."

The one way to solve the problems is to junk all of our present system of control and outlaw once and for all the deceitful and fraudulent practice of artificial coloring and let every one dispose of his fruit just as he sees fit if and when he can. Of course the "big shots" will disapprove of any such program as this for they might lose some of the capital which they have invested in processing machinery which, of course, just won't do(?) But which is worse, for a few of the "big shots" to lose a little of their ill-invested capital, or for thousands of small growers to lose everything they have including their homes, their families and self-respect? Which is the most important to the state and nation, the speculators' investment of his surplus dollars, or the preservation of the homes and the proper education of our children who are to be the citizens of tomorrow? Does it seem possible or probable that good citizens can be raised by abusive methods, extortion or persecution? Those who hold the reins of our destiny had better think carefully before they act.

The whole thing boils down to just this: The self-appointed chosen few are attempting to "Hitlerize" the citrus industry and in case you do not know what that means just read the headlines in our newspapers or listen to the radio reports of the European war news. Let's get back to the old Democratic principle of liberty and freedom and the preservation of the individual's rights — and keep "Hitlerism" out of America.

Yours truly,

L. P. DeWOLFE.

### ANOTHER PROTEST

(Indian River Fruit District)

Fellsmere, Florida, Jan. 9, 1940.

Editor The Citrus Industry,

Dear Sir:

There cannot be too much protest against the marketing of inferior fruit from Florida. As a housewife I can sympathize with the women in the North who get "stung" on Florida oranges. As a wife of a grower I know we do produce good fruit in Florida.

Having lived in the North some years ago, I know at that time California fruit was inferior to the Flor-

ida fruit. Perhaps the California fruit has improved, but many friends have told me our RIPE fruit was as good or superior to California fruit.

I truly believe if our fruit was shipped only when at its best it would compete better in the markets of the North.

I do a little contesting as a hobby and am sending a leaflet and letter which are self-explanatory. Will you please return them in stamped envelope.

Sincerely,

MRS. H. H. PENNINGTON,

Box 12, Fellsmere, Fla.

EDITORIAL NOTE: One of the

## for Better Bloom Heavier Set Proper Sizing Calcium Nitrate

Nitrate Nitrogen and Water-Soluble Calcium

**CALCIUM NITRATE** is the most popular of all top dressers for spring application. It supplies both Nitrate Nitrogen and water-soluble Calcium — two plant foods for the price of one.

**Again this spring CALCIUM NITRATE is the growers' best buy!**

**Field service, information and prices are yours for the asking.**

## Jackson Grain Company

Tampa Florida

State Distributors

**NITROPHOSKA  
CALCIUM NITRATE**

**X-CEL FERTILIZERS  
TENNESSEE BASIC SLAG**

enclosures referred to be Mrs. Pennington is a letter from Barbara Young of Willow Grove, Pennsylvania, from which the following excerpts are quoted: "Thank you for your recent letter. I'm glad of this opportunity to learn more about Florida oranges. The brand we buy here, around Philadelphia, is definitely inferior. The Florida oranges we receive here are not very sweet and usually have tough pulp and a great many seeds. I have several Florida friends and they agree most heartily with you, so I have come to the conclusion that the best Florida oranges are sold in localities close to Florida and that the oranges we receive are either shipped while still green, which may account for their lack of sweetness, or are somehow deteriorated by the time they arrive. I do think that Florida grapefruit is ever so much better and Florida grapefruit appears on my table often."

## ENTOMOLOGICAL

## CONDITIONS IN 1939

(Continued from page 11)

small areas, though it probably would be too expensive for any consider-

## A Correction

In the article on "Control of Termites in Citrus Groves," on page 14 of the January issue, there is a serious mistake in the center paragraph of the center column. This paragraph begins: "Another pest . . ." Then down to the sentence concerning the carbolic acid emulsion, which reads:

"This is made by emulsifying a pint of crude carbolic acid, a pound of soap, fish oil or common laundry soap dissolved in it and then the carbolic acid added."

This should read: "This is made by emulsifying a pint of crude carbolic acid, a pound of soap, fish oil or common laundry soap, in three gallons of water. The water should be heated and the soap dissolved in it and then the carbolic acid added."

able acreage.

In the study of root knot, a heavy mulch has been shown to be very effective in reducing the numbers of the worms in the soil. The rotting vegetable matter is favorable to the

growth of certain fungi which destroy the eggs and other stages of the worms.

In the field of insecticides, much progress has been made in the past year in getting cheaper and more effective pyrethrum and rotenone compounds. Since arsenate of lead cannot be used on any vegetable product that goes to the market, like the heads of cabbage, for instance, dependence must be placed on rotenone compounds which are non-poisonous to human beings.

## PLANT FRUIT TREES

More extensive plantings of fruit trees for producing and serving as ornamentals as well has been stressed during the recent weeks by Broward County home demonstration club members, according to Miss Olga M. Kent, home agent.

Oelanders do best when they are pruned back to about two feet in late Winter or early Spring just before growth starts. Vigorous growth and bloom will usually come out on the stubs in the course of the following summer.

**WINTER WILL  
BE OVER SOON..  
and I'll be wanting food again!**



**KEEP YOUR TREES SMILING**  
*with a healthy, balanced diet!*

• Give them plant food that will not only satisfy their immediate needs, but will stay with them through a considerable period. This means it will give them plenty of the right kind of nitrogen.

**U**REA NITROGEN is completely available and highly resistant to leaching. It is long-lasting, as well as quick-acting.

"URAMON" is an attractive form of Urea Nitrogen. Included in your top-dresser or regular mixed fertilizer, it will help produce the results you wish—VIGOROUS TREES AND GOOD FRUIT.

DUPONT ON THE AIR—Listen to "The Cavalcade of America" Tuesdays, 9 p.m. E.S.T. over NBC networks.

"Uramon" Fertilizer Compound  
Reg. U.S. Pat. Off.  
(42% Urea Nitrogen)

Urea-Ammonia Liquor  
(45% Nitrogen)



**E. I. DU PONT DE NEMOURS & CO., INC., Ammonia Dept., Wilmington, Delaware : : Orlando, Florida**





## No Chain Is Stronger Than Its Weakest Link!

**And So It Is With Fertilizers — Each Vital Element Which Is Lacking Represents A Missing Link In The Chain Of Essential Food Requirements Which Your Trees Must Have.**

As illustrated on this page there are ten vital elements which are absolutely essential in providing citrus trees with a complete fertilizer ration — each represents a link in the chain of ingredients which go to make up a thoroughly efficient fertilizer.

Competent authorities are stressing more and more the need of these essential elements for the production of fine fruit — fruit fine in appearance, fine in texture and fruit that is truly palatable.

It is true that these ingredients must be present in your fertilizer in their proper proportions if they are to do the most good — to make the strongest chain for the pulling of your trees and fruit up to their maximum condition — and that is where our long experience and expert technique comes in. Superior Extra Value Vita-El Brands are manufactured with the same degree of knowledge and accuracy as is used in the manufacture of a perfect chain, where a knowledge of every detail affecting the production of a perfect product is available.

Others are finding our Extra Value Vita-El Brands the answer to their production problems. It will pay you to give them a trial on your next application.

**Our Field Service Men Are Prepared To Offer You  
Unexcelled Counsel With Your Grove Problems**



### SUPERIOR FERTILIZER COMPANY

**FACTORY AND OFFICE EAST BROADWAY AT 47th STREET**

Phone Y-1623

P. O. Box 1021

**TAMPA, FLORIDA**

G. D. Sloan, Pres.

W. G. Wells, Sales Manager



# *The* LYONIZER

Department

COMPILED BY THE LYONS FERTILIZER CO.

**I**T WOULD BE FOOLISH for us to try to kid ourselves or anyone else about the seriousness of the recent cold spell in Florida and its effect upon the citrus industry of the state.

However, we want to remind you and to remind ourselves that conditions could be infinitely worse. While there may be little solace in recalling that the industry has repeatedly recovered from situations even more acute than the present one, notable among which was the year when the Mediterranean fruit fly condition prevailed. There have been previous periods of damage by cold, while bank failures and other disasters have failed to down the industry.

The citrus industry of Florida has not been ruined. We will all be faced with losses, but the industry still remains a strong and going concern.

Let no one mistake that fact.

Just what tree damage there may be remains to be seen but as a whole the trees this season were in much better condition to withstand the cold than was the case in 1934 when the cold spell had been preceded by an extended period of drouth.

It is safe to assume that those groves which may be most seriously damaged were marginal groves where it was a gamble to plant trees in the beginning.

—And knowing the Florida citrus grower as we do we know that he will react to whatever damage may have occurred by saving what portion of his crop he may and by seeing that his trees are given the proper treatment and nourishment they need to snap out of their temporary set-back now that the cold spell is waning.

That old saying—"You can't keep a good man down!" applies to Florida citrus growers more than to anyone else in the world in our opinion, and we confidently expect this to be demonstrated again as it has so often been proven in the past.

W. L. WARING, JR.,  
President & General Manager

## FARM AND GROVE SUGGESTIONS FOR FEBRUARY

Prepared By Horticultural Department Lyons Fertilizer Co.

### CULTIVATION

Remove banks from young trees after the 15th of the month and examine carefully for wood lice. Cultivation during the latter part of month will tend to stimulate trees, and if it should become dry, frequent cultivation will conserve moisture. Keep vegetable crops cultivated thoroughly.

### PEST CONTROL

Keep a close watch for aphids. Spray for the control of scab on grapefruit and for thrip and rust mite in the bloom. Keep careful check for all pests on vegetable crops, and consult with the Lyons man for proper control method.

### FERTILIZER

Fertilize young trees and complete spring application of fertilizer on trees on those that have not already been fertilized. Our field man in your territory will be glad to advise with you on the proper fertilizer to use. All vegetable crops should be kept in thrifty condition with frequent applications of Lyons Fertilizer.

### COVER CROP

In groves where infrequent cultivation is practiced it is splendid time to start cover while the moisture is good. At least arrange for seed so that it can be planted later, as a good cover crop is most essential.

### PRUNING

Pruning can be done now if the new growth is well out. All cuts should be made close to the main trunk or branch from which the dead wood is to be removed. The large cuts should be smoothed off and covered with paint.

Lyons Fertilizers and the Lyonsize Your Crops Program are doing a splendid job of giving Florida growers maximum crop returns at minimum cost.

## Personal Items

In our opinion, one of the better citrus producing sections in Polk County is in the vicinity of Auburndale. As a whole, the soil is above the average there and the trees respond well to care. We would like to call your attention to the following groves in that section which speak for themselves: The D. B. Thomas grove, the Ridley groves, the Bostick groves, and the R. C. Bailey grove.

G. P. Bowis of the Lake Magdeline section has one of the best grapefruit crops in this section. He is a strong believer in our fertilizers, and one of our best boosters.

Emile E. Watson is developing a very muck vegetable farm on the north side of Lake Parker in Polk County. R. E. Betz, the very capable manager, states that they will have about 150 acres under cultivation this spring.

Mac McCartney, our genial representative in West Central Florida, is still confined to his home in Temple Terrace. It has been very encouraging to Mac to have so many of his friends and customers call or inquire about his condition, and he wants everyone to know that he deeply appreciates every thought.

The Ruskin area is fast becoming one of the leading tomato sections of the state. Growers in this territory are 100 per cent boosters for their section, and this coupled with the natural resources are certain to result in rapid development of the community.

Iceberg lettuce is being grown quite generally in Manatee County this season and quite a few growers have made plantings in DeSoto County. We have had an ideal season for growing this crop, and as a result Florida is sending as fine lettuce to the northern market as could be grown anywhere.

A tree to develop and grow properly demands a proper diet in the same degree as a blooded horse or a prize brood of chickens.

## Little Bits of FUN



### EVER EAT ONE?

"George, you may bring me two fried eggs, some boiled Virginia ham, a pot of coffee, and some rolls," said a man to a waiter on a dining car just after leaving Montreal.

"Yassa."

His companion said. "You may bring me the same, but eliminate the eggs."

"Yassa."

In a moment, the waiter came back. "Scuse me, boss, but jes what did you all say erbout dem aigs?"

"I said just eliminate the eggs."

"Yassa." And he hurried away to the tiny kitchen.

In another moment he came back once more, leaned confidently and penitently over the table and said: "We had a bad accident just afo' we leave de Windsor Street Depot dis mornin', boss, and de liminator done got busted off, right at de handle. Will you take 'em fried same as dis hyar genman?"

When Peter Bennett, Constance's one and only, was six, he was intrigued by a pair of goldfish in the patio. He would sit on a high stool with his chin in his hands and gaze for hours at the finny members of the household. One day, Constance, finding him so, asked, "Peter, don't you ever get tired of watching those fish?" "Tisn't the fish I'm watching, Mother," Peter said solemnly. "Mickey next door said fish had scales. I've been watching every day to see them weigh themselves!"

No man's opinion is entirely worthless. Even a 10c watch tells the right time twice a day.

Lyons Field Service staff is available to all Florida growers without cost or obligation.



## TALKING IT OVER

(Continued from page 6)

ture and forage crops and to manage these areas so that there will be improvement instead of depreciation in the future, is underway. The Texas cattle fever tick has also been eradicated. The cause and remedy for salt sickness has been determined. These, too, contribute to the conservation of the range cattle industry of Florida.

Our citrus crop has been developed to a high state of production. A large part of it was planted on areas generally considered as non-productive and marginal soils, but by management and care productive groves have resulted. In the early stages of this development, the marketing problems that now confront the industry were not known or understood. The system of marketing that has grown up with the industry, of a necessity, has compelled a conservation program of canning and processing and now, with many imperfections, is uppermost in the minds of grove owners and citrus interests in this state. The production of these groves cannot be wasted without serious loss to the growers, and ways and means are being studied to prevent such losses. Our programs to prevent destruction and waste have been injected into the affairs of agriculture and the success of these is depending on a thorough understanding of the problems involved. This has been the basis of educational programs set up to meet conditions as they arrive. The institutions involved in such programs are both Federal and State.

Some 50 years ago the Florida Experiment Station was set up to investigate and make available unbiased information having to do with these and many other problems. 25 years ago the Agricultural Extension Service was set up by authority from Federal and State administrations to promote educational programs, to distribute educational material made available by the Experiment Station and Government to the farmers and growers, and to help promote an appreciation for such recommendations.

The Agricultural Colleges of the United States have the responsibility of training men that they may supply their approved practices to their farms and to act as leaders and trainers to serve in educational programs as County Agents, Home Agents, Vocational Teachers, Farm Security Supervisors, and leaders in forestry, marketing and many other

matters.

The Triple A program set up in 1933 to relieve distressed agricultural conditions has provided payments to enable farmers to maintain proper living standards, and to assist them in carrying out conservation practices that would improve and assist in their farm operations.

Other programs that have provided credit and markets have been set up by Federal and State authority so that the producer's credit may be protected, permitting him to conserve his resources and labor and thereby providing suitable living

standards for our population. The county and home agents in 60 of the 67 Florida counties have as a part of their daily affairs various phases of the conservation practices referred to. Their work is educational. A large part of the government payments for conservation practices have been sufficient to give encouragement and to provide initial effort and point the way toward conservation practices that will follow when farm income measures up with incomes of other groups.

Conservation is a major phase of progressive Florida agriculture. Its

# BROGDEX

REDUCES DECAY  
RETARDS SHRINKAGE

## THE ADVANTAGES OF OUR SERVICE

### Less Decay

A Better and More Permanent Polish  
Better Keeping Qualities in the dealer's hands  
A better color at a lower temperature  
Less damage in coloring rooms  
More weight per box upon arrival  
Tight straps and a full box  
Fewer adjustments on F. O. B. sales

## THE COST

The savings on refrigeration and decay and on adjustments on F. O. B. sales will more than pay the small service charge. The savings on refrigeration and the higher prices received on auction sales will leave a substantial profit above the cost.

The satisfaction your fruit will give due to its superior keeping qualities will mean more F. O. B. sales.

May we discuss the matter with you?

# B. C. SKINNER

DISTRIBUTOR

Brogdex Process  
Color Added Process  
Coloring Room Process

Dunedin, Fla.

importance can hardly be over-estimated. If we do not practice it, we may find our lot similar to that of the man who killed the goose that laid the golden eggs. We have advanced in conservation of our land and resources. Let us continue to do so.

#### COURTS OUTLAW CITRUS WASHING SHEDS IN STATE

Roadside washing sheds for the accommodation of citrus growers desiring to ship their fruit to out-of-state markets by truck, which was authorized by act of the recent Florida legislature, have been outlawed by recent court action. The legislative enactment was held to be unconstitutional by reason of the fact that certain gasoline taxes were diverted for use in construction of the sheds.

#### AN EARLY SURVEY OF FLOR. IDA'S RECENT COLD SPELL

(Continued from page 3)

seed loans be speeded up and liberalized.

Representative Pat Cannon wired that WPA administration would release an additional emergency quota of 5000 on Wednesday, Jan. 31, to put to work unemployed persons who lost their jobs due to the freeze.

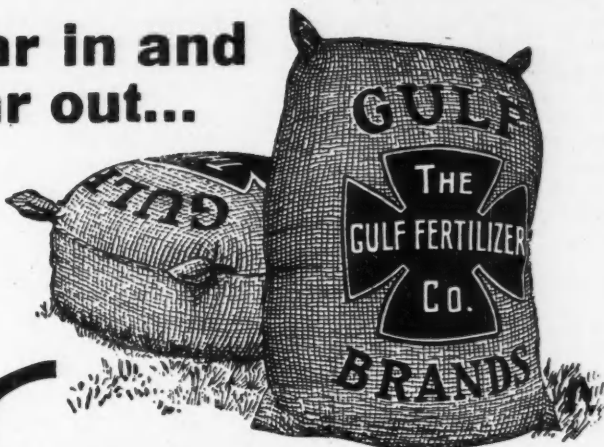
Members of the delegation were unanimous in saying that they will do everything in their power to secure further aid. They were scheduled to meet with President Roosevelt on Wednesday to ask that the \$400 limitation on crop rehabilitation, seeds and replanting loans be lifted.

Governmental representatives and field men from the Federal Land Bank already are in Florida making a survey of the situation.

Senators Pepper and Andrews wired that assistance being requested includes: liberalization of seed loans from the Farm Credit Administration; loans and grants from the Farm Security Administration; launching of a program of large scale purchases of fruit, by the Surplus Commodities Corporation, before thawing out sets in; and extension by the Federal Land Bank and subsidiaries of from 18 to 24 months on payment of interest and principal now due or falling due in that period.

The State Citrus Commission has been called into extraordinary session to meet in Lakeland at 10 o'clock Wednesday morning, Jan. 31st., at which time the Commission will determine what steps should be taken to cope with the situation.

## Year in and year out...



**GULF** *Brands of*  
**FERTILIZER**  
maintain the



of your  
soil!

★ Ordinarily, of course, the term pH designates the acidity or alkalinity of soils. But in another broad sense, as used here: . . .

p-h means:

## PRODUCTIVE HEALTH...

With the right plant foods in the right amounts at the right time, your grove will thrive and produce quality fruit. GULF Brands of Friendly Fertilizers are made to meet the soil and crop needs in different sections of Florida. Year in and year out, growers have found that the economical way to maintain PRODUCTIVE HEALTH of grove soils is to stick to a GULF program. And it's part of the job of the Gulf Field Man in your section to help determine what your grove needs at all seasons of the year to keep it thrifty. Ask him to call and explain why GULF service saves you money in the long run.

**THE GULF FERTILIZER COMPANY**  
36th Street, South of East Broadway, Tampa, Florida  
East Coast Factory—PORTEVERGLADES, Florida

### SOME SYMPTOMS OF CITRUS MALNUTRITION IN FLORIDA

(Continued from page 9)

whenever the toxicity is acute there is considerable loss of small wood and the trees are gradually reduced mainly to the frame-work of large limbs which are slow to die. New growth comes out on the large limbs in the form of short twigs carrying a few affected leaves and these die off rapidly.

#### Fruit Symptoms

No definite fruit symptoms have been identified but the crop is usually dropped as soon as the tree becomes severely affected and no new crop is set until the toxicity has been largely eliminated.

#### Modifications of Symptoms

Severe boron toxicity symptoms are too easily identified to be confused with other symptoms but in the mild form in which leaves show only whitish areas on the upper surface the pattern is sometimes confused with injury caused by six-spotted mites, although the two symptoms are quite different. Lacking other means of differentiation, an examination of the under side of the leaf will show the resinous excrescence in the case of boron toxicity and a buff-colored web where the injury is due to six-spotted mites. In cases of slight toxicity numerous tiny white spots may develop, giving the leaf a peculiar speckled appearance. The back of each light spot shows the typical pustules.

#### Causation

Boron toxicity in Florida results commonly from the dumping in the grove of culls which have been treated with borax and not washed, leav-

ing field boxes which have borax on them in the field during a rain, and the use of fertilizers which have had borax added to them. Usually only a few trees are affected in any one grove.

#### Treatment

Attempts to treat boron toxicity in Florida are not usually markedly successful, since the tree has already taken up a great deal of boron before the toxicity is discovered. Leaching the soil to remove the excess boron is sometimes useful in speeding up recovery and lime is occasionally used to fix the boron in an unavailable form. Mild cases generally recover about as quickly without any special treatment if no additional boron is applied, but the grower who applies some corrective treatment is frequently misled into believing that the recovery is due to the treatment.

#### Miscellaneous

A number of other symptoms occur in citrus in Florida which seem to be due to malnutrition; however, since the causes and treatments for these have not been determined there seems to be little point in discussing them in detail. One of these, "yellow spot," should be mentioned since it causes considerable defoliation occasionally and because it has been extensively discussed in the literature by Floyd. Yellow spot first appears on young leaves as irregular areas that have a semi-water soaked appearance and as the leaf matures yellow spots one-fourth to one-half inch in diameter develop on either side of the midrib and between the lateral veins. The under surfaces of these spots are covered with a

brown resinous excrescence. The leaves shed soon after the yellow spots become pronounced and the tree is sometimes severely defoliated as a result. So far it has not been definitely associated with any nutritional condition. Yellow spot was apparently quite common from 1908 to 1910 and has recently recurred in a number of groves.

While the foregoing discussion of citrus deficiency symptoms is admittedly incomplete, nevertheless, the symptoms discussed are extensively used in grove practice in Florida and at present constitute some of the most reliable guides available. It is hoped that this bulletin will make the published information on the various technical phases of the problems more easily understood by growers in Florida and possibly aid workers in other citrus areas in understanding the Florida problems.

The writers wish to express their appreciation to the various members of the Staff of the Citrus Experiment Station for their very generous help in the preparation of the manuscript and to Dr. Michael Peech in particular for his help on the discussion of the soil problems involved.

Usually, *Crotalaria spectabilis* seed will keep all right without being infested by insects, but inspecting them occasionally is a good idea. If they do become infested, fumigating them with carbon bisulphide in a tight room (one pound to 100 cubic feet of space) will get rid of the insects.

The Nation should guard its agriculture, so that its agriculture may guard the Nation.—Secy. Wallace.



Above is shown a picture of the Sales and Service Staff of the Tate-Phillips Company, of Winter Haven, prominent South Florida farm implement, truck and tractor distributors.





## The House That Service Built--

Pictured above is the home of the Tate-Phillips Co., in which is housed one of the most complete service shops in Florida, where expert mechanics are on call day and night — here too is one of the most comprehensive lines of parts in the state, while our display room shows a full line of the various machines for which we serve as representatives.

SEE  
THE PICTURE  
OF  
OUR STAFF  
ON  
OPPOSITE PAGE  
OF THIS ISSUE  
OF THE  
CITRUS INDUSTRY

Every member of this group is able and anxious to be of service to every patron of the Tate-Phillips Company.

Do Not Fail To Call Us  
When In Need Of Service

## International Trucks and McCormick-Deering Tractors

As a rule require much less service than the average but when help is needed our factory trained mechanics offer that service courteously, promptly and effectively.

## This Same Unvarying Principle

Applies to every branch of the Tate-Phillips Co., no matter how large or how small the customer purchase may have been.

Our Service Department Is As Close As Your Telephone

# TATE-PHILLIPS CO.

323 6th St., S. W.

WINTER HAVEN, FLORIDA

Phone 26-251

## HIGHLIGHTS OF A TRAVELING CONFERENCE

(Continued from page 5)

est and Park Service, United States Forest Service, National Resources Board, Office of Budget and Finance, Office of Personnel, Public Roads Administration, Rural Electrification Administration, Soil Conservation Service, State Planning Board, Southern Forest Experiment Station, and Vocational Agriculture.

Miss Mary E. Keown, State Home Demonstration Agent extended a gracious welcome to the guests. Dr. Newell opened a discussion of the Everglades Conservation project with an instructive talk on the formation of the Everglades soils, the drainage and development of the area, the resulting losses from muck fires, soil oxidation and subsidence. He indicated that a corrective plan has been evolved and introduced C. Kay Davis, project engineer of the Soil Conservation Service, who outlined plans to raise and hold a higher level of water in canals and to conserve and more wisely use the rain which falls in this area. "The first field work on this project," Mr. Davis announced, "started today." State funds match Federal funds in this project.

H. R. Tolley reviewed previous similar tours and stressed the point that in most agricultural areas of the United States the cry is raised that there are too many farmers on under-sized farms and no additional acreage available. He cited the Florida Everglades as one of the few exceptions to this in the country. He advised that no panacea in the form of mass movement of farm populations is to be expected.

Promptly at 7:10 A. M. Wednesday morning the cavalcade moved toward Georgia, stopping for inspection and discussion at the Olustee Experimental Forest and Naval Stores Station located in the Osceola National Forest near Lake City. Results of work of the Florida Forest and Park Service in this area were viewed.

The overzealous Georgia delegation crossed the Suwannee, and the group was turned over to them just beyond Lake City.

Secretary of Agriculture H. A. Wallace has charged the Bureau of Agricultural Economics with the very difficult task of coordinating the unifying the efforts of the various agricultural agencies both in Washington and in the field. These tours allow each agency to become better acquainted with the work of all other agencies. In each state a Land Use

Planning office is set up with the Extension State Project leader in charge. In this state C. M. Hampson has this position. Closely associated with him is Guy Andrews, State Bureau of Agricultural Economics representative. Mr. Andrews and a committee arranged the details of this tour. The excellent cooperation of all agencies made possible this well-planned and successfully executed tour.

## SAYS GROWERS SHOULD CONTROL MARKETS

Urging Florida citrus growers to form cooperatives to control marketing of their crops, C. B. Denman, agricultural counsel for the National Association of Food Chains at Tampa told the annual meeting of National Marketing Officials that citrus "in a few years has grown from scratch to a billion dollar industry."

Denman, speaking before the annual dinner meeting of the marketing group pointed out that despite the tremendous growth of the citrus industry little progress has been made by growers for control of mar-

keting their production for their own benefit.

"The citrus growers need the buyer for every box of citrus fruit, regardless of where he operates or whom he supplies," Denman declared. "Remember," he said "that if the market is glutted, and the buyer takes advantage of that condition, it was not he who brought it about. Obviously, if distribution is better organized than are the producers, maybe this is the signal which would say to growers 'Do likewise.'"

"I am persuaded," declared the chain store representative, "that there is no substitute for a commodity cooperative to render the best service in protecting growers' interests."

## CITRUS BUDS AND SEEDLINGS—

Usual Standard Varieties on Sour Orange Stock, also Sour Orange Seedlings. Nursery at Blanton, Pasco County. For information and prices, write R. P. Thornton or H. S. Pollard, Copthorn Nurseries, Box 2880, Tampa, Florida.

**MANURE** — Stable and Dairy Manure in car lots. Write for prices. P. O. Box 2022, Jacksonville, Fla.

**CITRUS SEEDLINGS;** Cleopatra, Sour, Sweet, Rough Lemon, Grapefruit. Grand Island Nurseries, Eustis, Fla.

**CROTALARIA SPECTABILIS** and Hay Peas. Write for our prices. We also have a full and complete line of all farm seeds. Robinson's Seed Warehouse, Cairo, Georgia.

**ALYCE CLOVER SEED.** Ripe and cleaned. Ideal cover and hay crop. Write for information. P. E. Snyder, Box 866, Lakeland, Fla.

**CROTALARIA SPECTABILIS** — Fresh crop; \$15.00 per 100 lbs. f. o. b. Frostproof, Fla. Milton Woodley, Frostproof, Fla.

**CHOICE Rough Lemon Seedlings** 6 to 20 inches high, \$10.00 per thousand. Olan Altman, Sebring, Florida.

"MAIL ORDER Operator desires contact with grower of high grade avocado pears. Have interesting proposition for grower of highest quality fruit." F. R. Gardner, P. O. Box 528, Greenville, Pa.

**CITRUS NURSERY TREES;** Standard and new varieties. Low prices for Fall planting. Grand Island Nurseries, Eustis, Fla.

**LARGE AND SMALL** orange groves for sale also acreage suited for citrus culture, dairying and general farming. Charlton & Associates, Valuation Engineers and Real Estate Appraisers, Ft. Lauderdale, Fla.

## CLASSIFIED

## Advertisements

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

**FOR SALE** — Niagara power duster, Model F, good as new, equipped with 4 HP Cushman engine, mounted on iron wheel truck. \$250. C. O. Reiff, Marianna, Fla.

**40,000 CITRUS TREES** For Sale — Selling out cheap. All standard varieties. A. M. Harvey, 818 South First St., Winter Haven, Fla.

**SUPERIOR CITRUS TREES** of principal varieties. Also limes, lemons and the best new varieties of tangelos and avocados. Ward's Nursery, Avon Park, Florida.

**GRAFTED AVOCADO TREES** of leading varieties, priced low. R. B. Rosentreter, Winter Haven, Fla.

# Florida Horticultural Society Meets In Tampa

April 2, 3 and 4, 1940

— By —

Bayard F. Floyd  
SECRETARY

The Florida State Horticultural Society will hold its Fifty-Third Annual Meeting in the Tampa Terrace Hotel, Tampa, opening at 8:00 P. M. on Tuesday, April 2nd, and continuing through the 3rd and 4th. The theme of this meeting will be a review of the effects of the recent cold on citrus, avocados and other sub-tropical fruits, as well as ornamentals, with a discussion of methods of care for cold injured groves and the effectiveness of different methods of firing groves for protection against low temperatures during the recent cold period. New developments in soil studies, and in the field of disease and pest control, will receive consideration. Speakers have been invited to discuss the Federal Crop Insurance Plan, Co-ordinated Credits and the marketing of citrus fruit from a national viewpoint.

The Florida Soil Science Society will hold its meeting at 2:00 P. M. of Tuesday, April 2nd, in the Tampa Terrace Hotel just previous to the opening of the Horticultural Society. Its meetings are open to the general public. The program will consist of discussions of Florida soils and technicalities having a bearing on the AAA Program for 1940 as affecting citrus growers.

A banquet will be held in the Palm Room of the Tampa Terrace Hotel at 7:00 P. M. on Wednesday night, April 3rd. Some prominent speakers are being invited for this occasion.

The Krome Memorial Institute, which is the part of the program devoted exclusively to the discussion of tropical and sub-tropical fruits, exclusive of citrus, will hold its Eighth Annual Meeting on Thursday, April 4th. There will be two sessions, one at 9:30 A. M. and the second at 2:00 P. M. The status of avocados, mangos, papayas and other sub-tropical fruits will be discussed. The behavior of old varieties and new varieties of avocados will be considered, including methods for rejuvenating the industry.

The Vegetable Section which was organized last year, at the Hollywood meeting, will hold its Second Annual Meeting in Tampa in connection with the Horticultural Soc-

ety. It will have two sessions on Wednesday, April 3rd, the first meeting being at 9:30 A. M. and the second at 2:00 P. M. Among the various subjects that will be considered are Water Control on Vegetable Lands, Cost of Celery Production in the Everglades, New Varieties of Vegetables, Cold Effect on Iceberg Lettuce, Market Trends in Iceberg Lettuce, Pink Rot of Celery Soils and Fertilizer Problems in Vegetable Growing.

The Florida Rose Society will hold its Fifteenth Annual Session on Wednesday, April 3rd at 2:00 P. M. The Fifteenth Annual State Rose Show, sponsored by the ladies of the Federation of Garden Clubs of Tampa, promises to be the best and most spectacular show the Society has

staged. Roses have not been damaged to the extent as have other ornamentals. Plantings were made last fall for this Show, and this, supplemented by exhibits from individuals and clubs from different parts of the state, will give volume and variety.

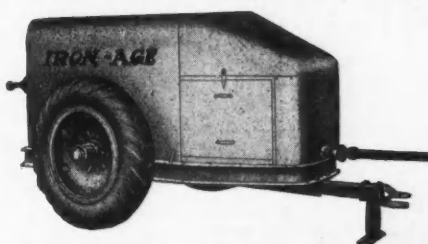
The Tampa meeting gives an opportunity for the growers, irrespective of affiliation, to get together to discuss their production problems and other phases of general interest and a good attendance is anticipated.

## HOME ORCHARD DRIVE

Fifty Madison County families ordered a total of \$184 worth of nursery stock in the recent home orchard drive directed by Miss Bennie Wilder, home demonstration agent.

## More Thorough Spraying Per Dollar with High Pressure

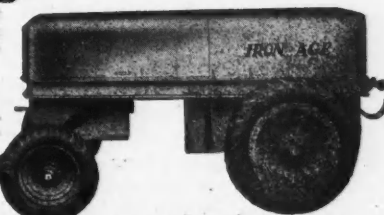
## IRON AGE VICTORY PUMP



Hook up this Iron Age Power Takeoff sprayer to your tractor, fill the tank and you're ready to go. Ideal for grove or orchard use.

### HIGH PRESSURE VICTORY PUMPS

are built in 6, 10, 14, 20 and 37 gallon-per-minute capacities. Working pressures are up to 600 lbs. P. S. I. in the 6 and 10 gallon sizes; 1000 lbs. P. S. I. in the 14, 20 and 37 gallon sizes. Easiest pump to understand, the Victory is completely equipped with built-in strainer, pressure regulator and air chamber. Its displacement efficiency is 99.5% plus.



Iron Age Short Turn Power sprayer passes through closely planted groves or orchards with ease, can be pulled by tractor or team.

Distributors:

HECTOR SUPPLY CO., Miami, Fla.

SUPERIOR FERTILIZER CO., Tampa, Fla.

Write for new sprayer manual

**A.B. FARQUHAR CO., LTD., 4334 DUKE ST., YORK, PA.**





## The People of Florida Need As Governor A Man--

Whose personal and public life cannot be assailed —

A Man whose record of Honesty, Courage and Fairness is conclusive —

A Man whose consideration of every individual, regardless of his profession or position in life, has always been Sympathetic and Understanding —

## Spessard L. Holland IS SUCH A MAN

His public record furnishes undeniable proof of the claim his friends make that those traits named above are instinctive and unchangeable in Holland's character.

Holland's prominent and influential part in the development of legislation favorable to the growers of Florida is a matter of record. It is a fact which is readily admitted by a vast majority of Growers whose interests, as the result of Holland's efforts in securing constructive legislation, are safeguarded against the selfish attempts of any predatory operators who under certain conditions would have the small growers absolutely at their mercy.

Protection of growers by intelligent legislation is becoming more important as citrus production increases.

The handling of the situation following the recent freeze undoubtedly furnished conclusive evidence of the stabilizing effect of such legislation. Without control over the marketing situation the small grower would have been helpless in the chaos which would have followed the freeze, while as the matter stood every grower, big or little, was accorded exactly the same consideration.

Holland has evidenced his regard for the rights of the people of Florida in his official action in the legislature—

—By constantly opposing the passage of a sales tax.

—By sponsoring the Workmen's Compensation Act.

—By assisting in securing the passage of the Florida School Code.

—By sponsoring the Teacher's Retirement Act.

—By sponsoring the Fair Trade Act.

—By securing passage (three times) of the repeal of the gross receipts tax.

—By securing unemployment insurance.

—And in innumerable other ways in seeking to bring relief to the aged, the blind, the dependent and crippled children and others who through misfortune or heavy tax burdens were oppressed.

Throughout the entire citrus area of the state and from the entire state beyond the confines of the citrus area come reports that Holland's proven record of competence, his regard for the rights of the workers, his practice of meeting all issues squarely and his attitude of Tolerance and Common Sense makes him by far the outstanding candidate in the present campaign for Governor of Florida.

The affairs of your state will be in capable hands with Holland as Governor.

**BE WITH THE WINNER FROM  
THE START—VOTE FOR AND  
SUPPORT SPESSARD L. HOLLAND FOR GOVERNOR.**

(This advertisement prepared and paid for by citrus growers who want to see the citrus industry and the state as a whole profit by the election of Holland for Governor.)